

ASSY QTY	ASSY QTY	В/О	Part #	UNIT QTY	Description	Material	B/O INFORMATION OR SPECIFICATIONS	PG.	
			-1	2	PIN	4140/4142		2	
			-3	2	TAPER PIN	4140/4142		3	1
	Х		-5	2	WELDMENT			4	
	1		-7		PLATE	1018/1020 CR		5	
	1		-9		RING	1018/1020 CR		6	
	1		-11		SPLIT RING	CARBON STEEL TUBE		7	NOTE:
Х			-13	1	FXTURE WELDMENT			8	ATTACH 2 RUBBER PADS (-25) WITH AN
2			-15		MAIN TUBE	A500		9	APPROPRIATE ADHESIVE, ALIGN WITH SLOTS.
4			-17		ANGLE TUBE	A500		10	N
4			-19		END CAP	1018/1020 CR		11	DART
2			-21		DOUBLER	1018/1020 CR		12	AEROSPACE
2			-23		DOUBLER 2	1018/1020 CR		13	DROOP RESTRAINT
			-25	2	RUBBER PAD	RUBBER		14	DROOF RESTRAINT
2		В/О	-27		PAD EYES	S.S.	5/8 (MCMASTER-CARR #3024T18)	8	DWG NO. RB T101261-101 REV 2
		В/О	-29	2	BALL LOCK PIN	S.S.	Ø1/4 X 1-1/2 (MCMASTER-CARR #92384A036)	1	MAT'L UNLESS OTHERWISE SPECIFIED
		В/О	-31	2	LANYARD	COATED STEEL	Ø1/16 X 15 OAL (CARR LANE #CL2C)	1	DIMENSIONS ARE IN INCHES
		В/О	-33	4	FERRULE	ALUMINUM	Ø1/16 X 3/8 (MCMASTER-CARR #3896T31)	1	HEAT
		В/О	-35	1	RING	S.S.	3/8 X 2 ID (MCMASTER-CARR #33555T71)	1	SPEC 1. BREAK ALL SHARP EDGES
		В/О	-37	2	CABLE	STEEL	Ø1/4 10 FT USABLE (MCMASTER-CARR #3323T71)	1	DRAWN BY: GILBERT .015 x 45° OR .015R CHECKED: DUFFEELDT .015 x 45° OR .015R 2. DIMENSIONAL LIMITS APPLY
		В/О	-39	8	CABLE CLAMP	S.S.	1/4 (MCMASTER-CARR #31985T73)	1	CHECKED: DUERFELDT AFTER PLATING OPPS APPR: ANDERSON 3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009
		В/О		1	DART PLACARD	ALUMINUM	RB41011	1	QA APPR: LINDSAY USED ON MODEL
		B/O		1	CRATE ISPM15 CERTIFIED		SPECIALTY CRATE # CRATE I.D. 9 X 21 X 64	N/S	APPROVED: MACKOVJAK BELL 412
ASSY -13	ASSY -5								SCALE 1:12 DATE 6/16/2011 SHEET 1 OF 14

REVISIONS

DESCRIPTION

APPROVED

RW

JAG

SM

INITIAL

CFS

RJC

DEW

DATE

7/29/13

12/24/2014

8/18/2016

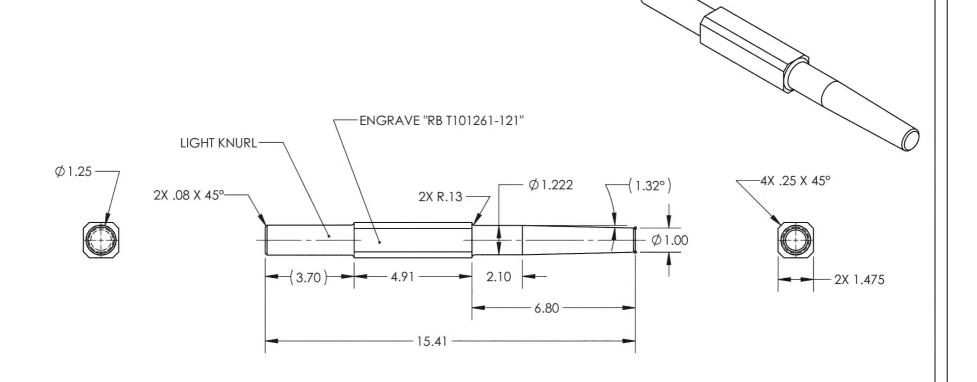
REVISIONS This drawing, specifications, and concepts contained here in are the sole property of Dart Aerospace, and may not be reproduced or used in any fashion without the prior written permission of Dart Aerospace Eugene, OR. APPROVED REV ECR DESCRIPTION DATE INITIAL |-1 CH'D FINISH WAS CAD PLATE YELLOW QQ-P-416F, TYPE II, CLASS II IS ZINC PLATE ASTM B633 TYPE I | SC2. 16-0125 8/18/2016 DEW SM - 10.61 · $\emptyset .38$ ϕ .250 THRU ALL--LITE KNURL R.62 .08 X 45°-Ø1.48 Ø 1.244±.002 R.06 1.13 -ENGRAVE "-119" (3.005)7.60



-1

PIN

I		REVISIONS						
	REV	REV ECR DESCRIPTION				APPROVED		
	Α		-3 CORRECTED ENGRAVE NOTE P/N WAS T101261-121 IS RB T101261-121.	7/30/13	CFS	RW		
	2	16-0125	-3 CH'D FINISH WAS CAD PLATE YELLOW QQ-P-416F, TYPE II, CLASS II IS ZINC PLATE ASTM B633 TYPE I SC2.	8/18/2016	DEW	SM		

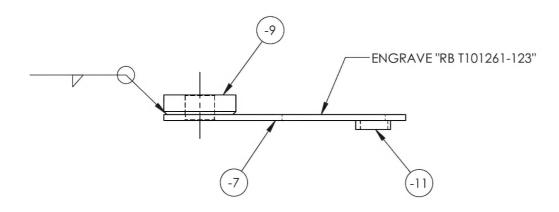


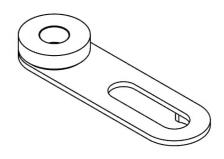


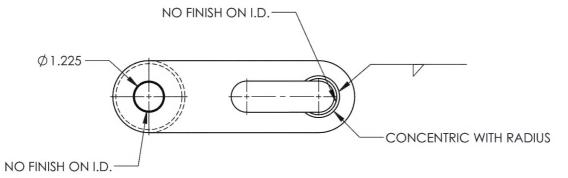
TAPER PIN

	AEROSPAGE						
TITLE	DROOP RESTRAINT						
DWG NO.	RE	3 T10	12	261-101	-3	2	
HEAT 36-40 TREAT 36-40 FINISH ZINC F SPEC ASTM DRAWN BY:	FINISH ZINC PLATE SPEC ASTM B633 TYPE I SC 2			UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES .XXX ± .005 FRACTIONS ± 1/8 .XX ± .01 ANGLES ±.5' .X ± .1 SURFACES = 125/ .1. BREAK ALL SHARP EDGES .015 x 45' OR .015R .2. DIMENSIONAL LIMITS APPLY			
CHECKED: DUERFELDT OPPS APPR: ANDERSON			AFTER PLA	TING I DIM AND TOL PER			
QA APPR: LINDSAY APPROVED: MACKOVJAK				USED ON MODEL BELL 412			
SCALE	1:2	DATE	6/1	6/2011	SHEET 3 OF	14	

		REVISIONS			
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
Α		-5 CORRECTED ENGRAVE NOTE P/N WAS 1101261-123 IS RB 1101261-123.	7/30/13	CFS	RW
2	16-0125	- 5 ADDED DIM 1.255.	8/18/2016	DEW	SM





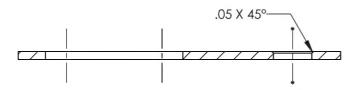




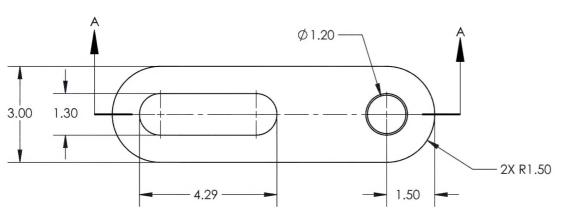


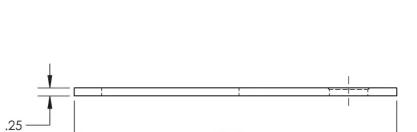
WELDMENT

		REVISIONS			
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
2	16-0125	-7 CH'D MAT'L WAS 1018 IS 1018/1020 CR. CH'D DIMS WAS ∅1.255 IS ∅1.20, WAS (.25) IS .25.	8/18/2016	DEW	SM



SECTION A-A







10.07

PLATE

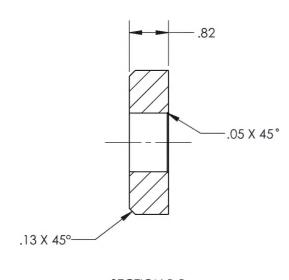


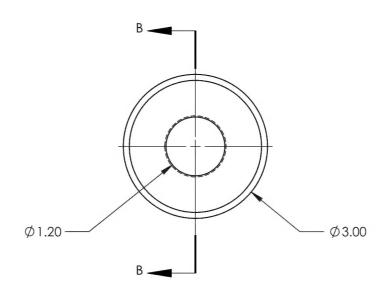
TITLE DROOP RESTRAINT

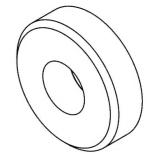
RB T101				261-101	-7	2		
MAT'L 1018/	1020 CR			UNLESS OTHERWISE SPECIFIED				
HEAT TREAT				DIMENSIONS ARE IN INCHES .xxx ± .005 FRACTIONS ± 1/8				
FINISH SEE -5 WELDMENT				.XX ± .01	ANGLES ±.5° SURFACES = 1	25/		
SPEC				1. BREAK ALL SHARP EDGES				
DRAWN BY:	GILBERT			.015 x 45° OR .015R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING				
CHECKED:	DUERFE	LDT						
OPPS APPR:	ANDERS	SON		3. INTERPRE ASME Y14.	T DIM AND TOL PER 5M-2009			
QA APPR: LINDSAY				USED ON MODEL				
APPROVED: MACKOVJAK			BELL 412					
SCALE 1:3 DATE 6/1			/16/2011 SHEET 5 OF 14					

	revisions						
F	REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED	
	2	16-0125	-9 CH'D MAT'L WAS 1018 IS 1018/1020 CR. CH'D DIMS WAS (\$\phi 3.00) \$\phi 3.00, WAS \$\phi 1.255 IS \$\phi 1.20.	8/18/2016	DEW	SM	

SCALE







SECTION B-B

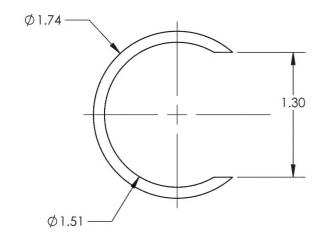
RING

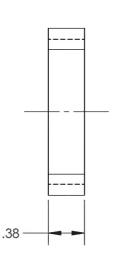
		RT	
TITLE	DROOP R	RESTRAINT	_
DWG NO.	RB T1012	261-101-9 2 REV 2	
MAT'L 1018/	1020 CR	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
HEAT TREAT		.XXX ± .005 FRACTIONS ± 1/8	
	5 WELDMENT	.XX ± .01 ANGLES ±.5° .X ± .1 SURFACES = 125/	
SPEC		1. BREAK ALL SHARP EDGES	
DRAWN BY:	GILBERT	.015 x 45° OR .015R	
CHECKED:	DUERFELDT	2. DIMENSIONAL LIMITS APPLY AFTER PLATING	
OPPS APPR:	ANDERSON	3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009	
QA APPR:	LINDSAY	USED ON MODEL	-
APPROVED:	MACKOVJAK	BELL 412	

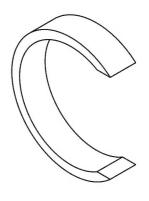
6/16/2011

SHEET 6 OF 14

		REVISIONS			
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED







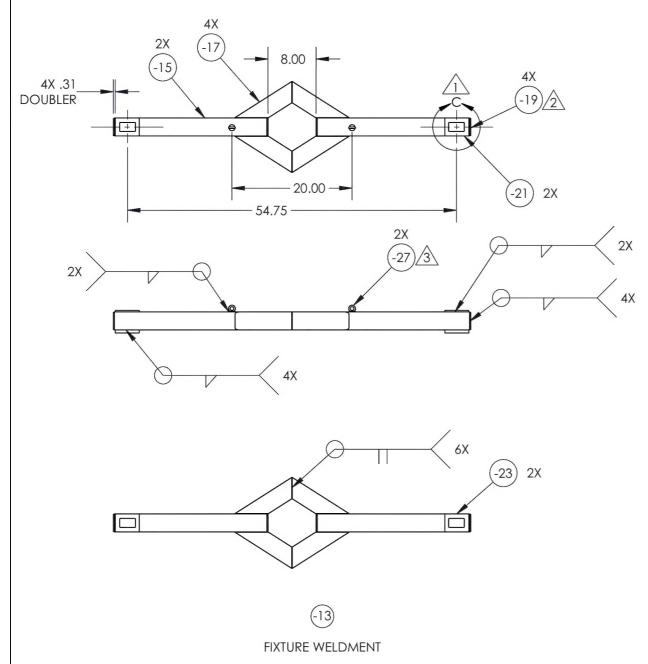
NOTE: STRESS RELIEVE WITH TORCH BEFORE SPLITTING.

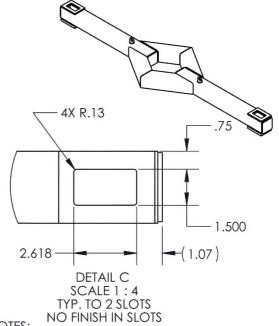
TITLE DROOP RESTRAINT DWG NO. RB T101261-101-11 MAT'L CARBON STEEL TUBE UNLESS OTHERWISE SPECIFIED TREAT FINISH SEE -5 WELDMENT SURFACES = 125 SPEC 1. BREAK ALL SHARP EDGES .015 x 45 'OR .015R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING 3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009 DRAWN BY: GILBERT CHECKED: DUERFELDT OPPS APPR: ANDERSON QA APPR: USED ON MODEL LINDSAY APPROVED: MACKOVJAK **BELL 412** SCALE DATE 6/16/2011 SHEET 7 OF 14 1:1



SPLIT RING

	REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED	
1	14-0229	-13 ADDED NOTES⚠ AND⚠.	12/24/2014	RJC	JAG	
2	16-0125	-13 CH'D DIMS WAS 1.07 IS (1.07), WAS 8X .31 IS 4X .31.	8/18/2016	DEW	SM	





NOTES:

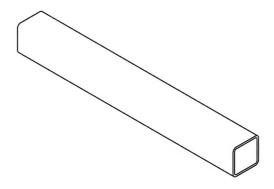
AFTER WELDING, MACHINE 2 SLOTS THRU.

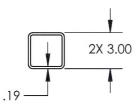
END CAPS -19 ARE NOT TO BE WELDED UNTIL AFTER MACHINING SLOTS.

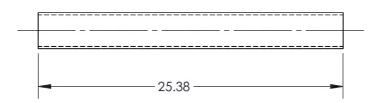
-27 MUST BE WELDED WITH PROPER FILLER FOR CAST TO MILD STEEL.



		REVISIONS			
REV	REV ECR DESCRIPTION				APPROVED
2	16-0125	-15 CH'D DIMS WAS (.188) IS .19, WAS (2X 3.00) IS 2X 3.00. CH'D TOLERANCES WAS .XXX ± .005 IS .XXX ± .010, WAS .XX ± .01 IS .XX ± .03.	8/22/2016	DEW	SM





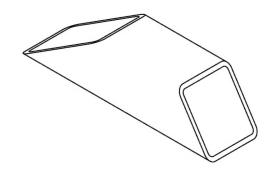


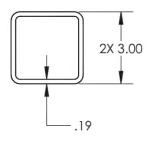
(-15)

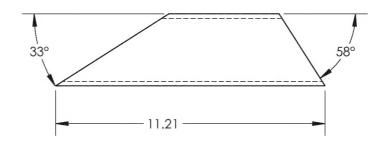
MAIN TUBE

DART							
11122	DROOP RESTRAINT						
DWG NO.	RB	T1012	61-101	-15	^{REV} 2		
MAT'L A500 HEAT TREAT FINISH SEE -13 WELDMENT					ES ,		
SPEC DRAWN BY:	GILBERT		1. BREAK ALL SHARP EDGES				
CHECKED:	DUERFE		AFTER PLA				
OPPS APPR: ANDERSON			3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009				
QA APPR: LINDSAY			USED ON MODEL				
APPROVED: MACKOVJAK			BELL 412				
SCALE	1:8	DATE 6/1	6/2011	SHEET 9 OF	14		

		revisions			
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
2	16-0125	-17 CH'D DIMS WAS (.188) IS .19, WAS (2X 3.00) IS 2X 3.00. CH'D TOLERANCES WAS .XXX ± .005 IS .XXX ± .010, WAS .XX ± .01 IS .XX ± .03.	8/22/2016	DEW	SM





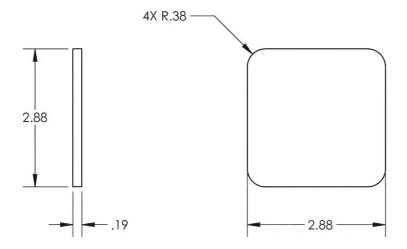


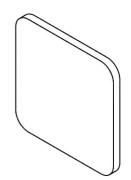


ANGLE TUBE

	DART								
TITLE	DRO	OOP R	RESTRA	MNT					
DWG NO.	RB	T1012	61-101	-17	^{REV} 2				
MAT'L A500 HEAT TREAT FINISH SEE -1	13 WELDME	NT	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES .XXX ± .010 FRACTIONS ± 1/8 .XX ± .03 ANGLES ± 10 .X ± .1 SURFACES = 125 1. BREAK ALL SHARP EDGES .015 x 45° OR .015R .2 DIMENSIONAL LIMITS APPLY						
DRAWN BY:	GILBERT								
CHECKED:	DUERFE	LDT	AFTER PLA						
OPPS APPR:	ANDERS	ON	3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009						
QA APPR:	LINDSAY	,		USED ON MODEL					
APPROVED:	MACKO\	/JAK	BELL 412						
SCALE	1:4	DATE 6/	16/2011	SHEET 10 OF	14				

		revisions			
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
2	16-0125	-19 CH'D MAT'L WAS 1018 IS 1018/1020 CR. CH'D DIM WAS (.188) IS .19. CH'D TOLERANCES WAS .XXX \pm .005 IS .XXX \pm .010, WAS .XX \pm .01 IS .XX \pm .03.	8/18/2016	DEW	SM



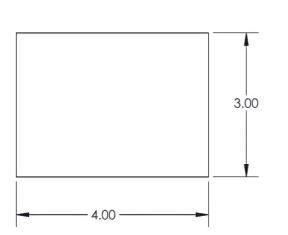


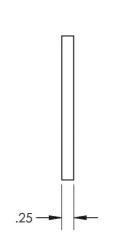
-19

END CAP

DART							
TITLE	DRC	OOP F	RESTRA	INT			
DWG NO.	RB	T1012	61-101	-19	^{REV} 2		
MAT'L 1018/1	020 CR		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES .XXX ± .010 FRACTIONS ± 1/8				
HEAT TREAT							
	13 WELDMEN	VT.	.XX ± .03	ANGLES ±1° SURFACES = 1	25/		
SPEC			1. BREAK ALL SHARP EDGES				
DRAWN BY:	GILBERT	-	.015 x 45° OR .015R				
CHECKED:	DUERFE	LDT	AFTER PLA				
OPPS APPR:	ANDERS	ON	3. INTERPRE ASME Y14.	F DIM AND TOL PER 5M-2009			
QA APPR:	LINDSAY	,	USED ON MODEL				
APPROVED:	MACKOV	/JAK	BELL 412				
SCALE	1:2	DATE 6/	16/2011	SHEET 11 OF	14		

REVISIONS								
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED			
Α	A -21 MOVED TO SEPARATE SHEET 12.				RW			
2	16-0125	-21 CH'D MAT'L WAS 1018 IS 1018/1020 CR, CH'D DIM WAS (,250) IS ,25, CH'D TOLERANCES WAS ,XXX ± .005 IS ,XXX ± .010, WAS ,XX ± .01 IS ,XX ± .03.	8/18/2016	DEW	SM			





SCALE

1:2



6/16/2011

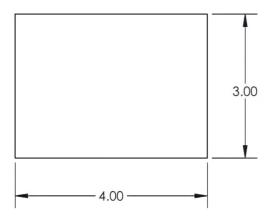
SHEET 12 OF 14

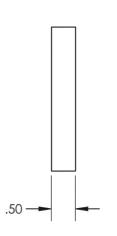
DATE

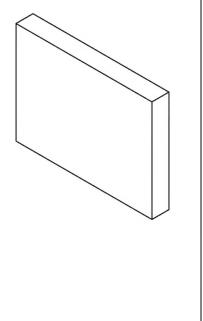


DOUBLER

REVISIONS							
	REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED	
	Α	A -23 MOVED TO SEPARATE SHEET 13.				RW	
	2	16-0125	-23 CH'D MAT'L WAS 1018 IS 1020 CR. CH'D DIM WAS (,500) IS .50, CH'D TOLERANCES WAS .XXX \pm .005 IS .XXX \pm .010, WAS .XX \pm .01 IS .XX \pm .03.	8/18/2016	DEW	SM	





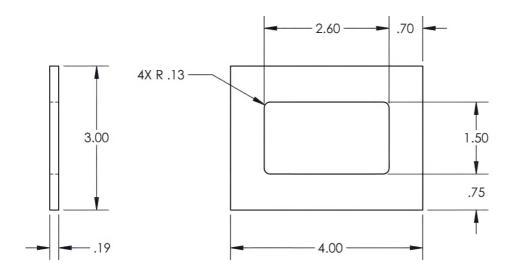


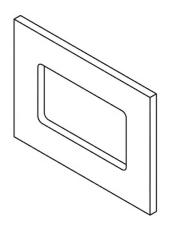
-23

DOUBLER 2

	DART							
TITLE	DRO	OOP	· F	RESTR/	ANT			
DWG NO.	RB	T101	2	61-101	-23	2		
HEAT IREAT	TREAT FINISH SEE -13 WELDMENT				UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES .XXX ± .010 FRACTIONS ± 1/8 .XX ± .03 ANGLES ±1° .X ± .1 SURFACES = 125/			
DRAWN BY: GILBERT CHECKED: DUERFELDT OPPS APPR: ANDERSON			.015 x 45° C 2. DIMENSION AFTER PLA 3. INTERPRE	1. BREAK ALL SHARP EDGES V .015 x 45° OR .015R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING 3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009				
QA APPR: APPROVED:	LINDSAY				USED ON MODEL BELL 412			
SCALE	1:2	DATE	6/1	6/2011	SHEET 13 OF	14		

		REVISIONS			
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
Α		-25 ADDED 4X R.13 DIMENSION.	7/29/13	CFS	RW
2	16-0125	-25 CH'D TOLERANCES WAS .XXX \pm .005 IS .XXX \pm .010, WAS .XX \pm .01 IS .XX \pm .03; CH'D DIM WAS (.188) IS .19; ADDED DIM .75, .70.	8/18/2016	DEW	SM







RUBBER PAD

		ֶׁלֶר גַּ	ER	RT			
TITLE	DRO	OOP	F	RESTRA	ANT		
DWG NO.	RB	T101	2	61-101	-25	PEV 2	
MAT'L RUBB	ER				S OTHERWISE SPECI		
HEAT TREAT				DIMENSIONS ARE IN INCHES .XXX ± .010 FRACTIONS ± 1/8			
FINISH				.XX ± .03	ANGLES ±1° SURFACES =	125/	
SPEC DURC	METER 65			1. BREAK ALL SHARP EDGES .015 x 45° OR .015R			
DRAWN BY:	GILBERT						
CHECKED:	DUERFE	LDT		2. DIMENSIONAL LIMITS APPLY AFTER PLATING			
OPPS APPR: ANDERSON			3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009				
QA APPR: LINDSAY			USED ON MODEL				
APPROVED: MACKOVJAK			BELL 412				
SCALE	1:2	DATE	6/1	6/2011	SHEET 14 OI	F 14	